[Document Name] ABSTRACT

[Abstract]

[Problem] Provided is a diffraction grating element that allows the temperature control mechanism to be dispensed with or simplified.

[Means of Solution] A diffraction grating element 1 is a diffraction grating element in which, in a transparent flat plate 10 having a first surface 10A and a second surface 10B which are parallel with one another and are in contact with a medium, a diffraction grating is formed on the first surface 10 A. The grating direction of the diffraction grating formed in the first surface 10A is parallel with the y axis direction, and a recess and protrusion are cyclically formed at a period Λ in the x axis direction. For example, the medium 21 and 22 are air, and the transparent flat plate 10 consists of silica glass. At any temperature within the temperature range from $-20°C$ to $+80°C$, the sum of a linear expansion coefficient of a period Λ of the diffraction grating and the temperature coefficient of the refractive index of the medium 21 and 22 is 0.

[Selected Drawing] Fig. 1